REPORT OF FOREST INSECT INFESTATIONS, SURVEYS, AND CONTROL OPERATIONS

LASSEN VOLCANIC NATIONAL PARK - 1948

While there has been no recent epidemic killing of forests in this park by insect infestations, an endemic bark beetle infestation exists throughout the pine stands, is annually responsible for killing of many trees singly and in groups, and is a particular threat to developed areas. To avoid loss of valuable trees and the possibility of infestations developing to epidemic proportions, control work is necessary from time to time in the areas of heaviest infestation.

To date the method of control has been felling, peeling and burning the bark to destroy bark beetle broods. Last summer, with the assistance of Dr. Ralph C. Hall of the Berkeley Forest Insect Laboratory, an experiment with DDT spray was made on four felled trees; two Jeffrey and two ponderosa pines. This spray consisted of DDT for destruction, fuel oil for penetration power and a red dye to enable us to trace the penetration. Later examination of these trees showed that the spray was successful in killing the broods in the two ponderosa and one jeffrey, but not in the other jeffrey pine. The mixture will penetrate about 1½ inches into the dense bark of the jeffrey and about two inches into the more loose bark of the ponderosa. It is believed that more DDT should be used in the mixture and that dense or thick bark should be hacked or the outer portion peeled off before spraying. Logs should be rolled after two or three days in the sun. The penetration is much greater where it is exposed to the warm sun.

It is hoped that a fully successful spray can be developed to avoid the fire hazard, scars, and destruction of other vegetation caused by burning the bark and logs of infested trees.

Dr. Hall made a survey of parts of the park on October 17 and 18, 1948 and a report of this survey was transmitted to the Region Four Office by Mr. Keen's memorandum of November 4. A copy has also been forwarded to the Director's office, with Mr. Maier's memorandum of November 5 recommending an allotment of $2,000 for insect control in Lassen Volcanic National Park in 1949. Quite heavy infestation is known to exist in lodgepole stands that were not treated last season and which were not inspected by Dr. Hall.

The following report and recommendations were submitted by former District Ranger Rutter, an excellently qualified forester, who supervised insect control work in this park in 1948 and the two previous seasons.

"The insect control work for the spring of 1948 was opened on May 2 with a two man crew to open the area and get all of the material and tools on the job. A full crew was on the job and working May 10

"

"Weather conditions were generally unfavorable during all of the month of May and for the first few days of June. Normally, light rain and snow is an aid to burning but this year the storms were of too long duration and too severe to permit burning.

"Due to the late season, most of the work was carried on in the Manzanita Lake, Lost Creek, and Noble pass units. Fifty two trees were felled, peeled and burned except four trees that were felled late and sprayed with a five percent DDT solution.

"From all indications a pretty good job has been done within the park area and it was possible to clean up the horseshoe curve section on the Lassen National Forest, (a pocket that for many years has been spreading infestation into the park). The area outside the park at the Lost Creek Crossing was not worked.

"Manzanita Lake Area.

"This unit has, and I believe will, change little as time goes on. The weakening effect of needle fungus, the poor site, and the age of the trees in this area all tend toward a generally poor vigor in the trees. A light attack of jeffrey pine beetle is sufficient to kill a majority of the small, old trees in this area. They are weakened by continued infestation of needle fungus and each year many of those in the rocky site around Reflection Lake and along the jumbles are attacked and killed by bark beetles. By continued observation of the area over a long period of time, it is almost possible to locate the trees each spring that will be gone the following year. In most cases the broods found are small but it is felt that even these small broods must be treated in order to prevent any build-up in the insect population in this area.

"Twenty-one trees were felled, peeled and burned; one tree felled and sprayed. Only six trees were over twenty inches in diameter on the stump.

"Noble Pass Area.

"A marked decrease in trees infested was noted in this area. Three trees were felled, peeled and burned. One tree seems to be showing up rather high on the south side of the pass but other than that things look fine.

"Lost Creek Area.

"This area is in good shape and the high number of trees is not a good or fair indication of the effect of the insect control work of last season. Two areas were worked more extensively, one outside the park, than last year.

"The ridge running north from the Horseshoe curve has long been a source of infestation and it has not been possible to cover this area completely until this year. This section plus the top of the ridge overlooking

the lower end of the Devastated Area was covered very well and cleaned up. The rest of the area worked last year shows a marked decrease in the number of trees attacked.

"A seemingly constant source of future infestation seems to exist in this unit as well as in the Manzanita Lake unit, although it is of entirely a different nature. There seems to be quite a few California flathead beetles in this area and each spring several trees are picked up that have been weakened by flathead attack during the past several years. This holds particularly true on the Horseshoe curve and in the vicinity of Old Boundary Spring.

"Twenty-three trees were felled, peeled and burned. Three trees were felled and sprayed with DDT.

"Butte Lake Area.

"Sixteen trees were felled, peeled and burned in this unit. Five of these trees were under twenty inches in diameter. Four were Ips killed in the top and had been attacked in the butt by Turpentine beetles. Apparently the attack of Ips was minor and confined to the six or eight trees reported last fall and is going no farther.

"Badger Flat Area.

"It was impossible to start work on the mountain pine beetle attacking the lodgepole in this area until June 18. Ralph Hall and John Patterson were in to the area on the 17th and the area to be worked was discussed. The principal source of infestation was found on the private property in Badger Flat.

"Sixty-eight trees were felled, exposed and rolled. Fifty nine were east of the second crossing on Hat Creek and the last six were on the Twin Lakes road. The rest were north of Summit Lake.

"There seemed to be definite spots of infestation but generally it seemed that the insects abandoned the spots of attack after the third or fourth year.

"Recommendations.

"It is not possible to forecast the extent of the insect attack at this time but it seems that a decrease can be expected in at least three of the units worked. These are Butte Lake, Noble Pass, and Lost Creek.

"The inherent weakness of the site and growing conditions at Manzanita Lake indicate a constant maintenance job of about twenty trees per year.

"Based on the burn method of control it appears that $2,000.00 will be sufficient to continue the insect control work for the coming season. Of this amount $800.00 should be reserved for the Manzanita Lake unit. The rest can be used in the other units as needed but some funds should be held to enable a crew to do a second working on the Badger Flat Area, paying particular attention to the section around the junction of the Cinder Cone-Twin Lakes roads. A survey should be made this fall by the Bureau of Entomology to ascertain if this expected decrease takes place.

"Outside appearances in the Manzanita Lake Area may indicate that there is a decrease in the number of trees but if a thorough search is made the trees will be found. Ther are usually small and due to color produced by needle fungus are very hard to detect from outside observation. A thorough, conscientious search must be made in the jumbles all through the area to find the infested trees.

"Maintenance work should be continued by all means. If possible, the area in Section 11, Township 31 north, Range 4 east in Lassen National Forest and adjacent to the park boundary should be cleaned up.

"At this time it is impossible to state definitely the effectiveness of DDT spray on thick barked trees but the four test trees should answer this question. If this method is successful, it should be adopted as standard practice. From all indications it is more desirable in all respects. The work can be done later in the season and by a smaller crew. Fire hazard is eliminated and it definitely will be a cheaper method of control. The only weakness is that reliable men must be hired to do the spraying and close supervision is necessary. The Bureau of Entomology seems sure of its effectiveness and its advantages are most attractive. The cost of equipment for this type of control is very reasonable."

The recommendations of District Ranger Rutter for the areas discussed are generally concurred in. Lodgepole stands in the Twin, Snag, Juniper and Horseshoe Lakes areas, and a fine stand of jeffrey pine east of Snag Lake have also been hard hit by bark beetles in the past to the extent that in some areas half of the standing trees are dead. These areas, in which no control work has been done since the early thirties must be watched for any trend toward near epidemic infestation such as threatened at that time.

Daniel J. Tobin,
Superintendent.

Form No. 10-423.

UNITED STATES
DEPARTMENT OF THE INTERIOR
National Park Service
Washington

19 48 Annual Forest Insect Report

Lassen Volcanic National Park

(Name of national park or monument)

Name of plant species attacked	Name of attacking insect	Infestation				Opening and closing dates for control	Control			Estimated total cost next year
		Location	Extent	Damage	Status		Treatment			
							Last year	This year	Next year	
1	2	3	4	5	6	7	8	9	10	11
P. Jeffreyi P. Lambertiana P. Ponderosa	Primary: D. Jeffreyi D. Monticolae D. Brevicomis Secondary: D. Valens Ips Oregoni Ips Confusus Flathead borers.	Manz. Lost Cr. Butte L. areas generally throughout pine stands of park.	Scattered trees through pine stands of park, probably 10 per section.	Dead and Dying	Old Endemic. Decreased in areas where control work has been done.	April 15 to June 30	Peel, burn 98 trees Reduced infestation noticeably along hwy. and near developed areas.	Peel, burn 62 trees Spray, DDT 4 trees, 75% success with spray	Fall & spray 50 trees	$2,000.
P. Contorta	D. Monticolae Ips Sp.	Badger Flat Summit, Twin, Snag, Horseshoe Lakes.		Dead & Dying	Same		None.	Fall, roll 68 trees	Fall & spray 75 trees	

Date or period of survey: August 27, Oct. 17, 18, 1948.

Submitted by: Eugene J. Barton

Unit of survey: Park at Large.
(Park at large, ranger district, biological control unit)

Title: Chief Ranger

Date: January 9, 1949

Method of survey: General observations.
(General observations, systematic examination by campgrounds, strips, plots, watersheds, tree census, or otherwise)

Instructions for preparing report

The report is due not later than November 1 of each year for the preceding 12-month period. If surveys in different control units or ranger districts within a park or monument are made by different individuals, each individual shall make out one of these forms together with an accompanying narrative report.

* Distribution of copies:

Original: Regional Director, Attention Regional Forester.
One copy: Director, Attention Chief Forester.
One copy: Entomological field representative, Bureau of Entomology and Plant Quarantine.
One copy: Park or monument files.

This report is to be supplemented with a detailed narrative report in accordance with the attached outline and also with a map showing the location of any new infestation or infestations of epidemic proportions.

All infestations within a park are to be reported on one sheet unless additional space is needed except the following:

1. Infestations of epidemic proportions which should be reported on separate sheets.
2. Surveys made by different individuals which should be reported by each individual on separate sheets.
3. Surveys made by ranger districts or biological control units which should be reported on separate sheets for each ranger district or biological control unit concerned.

Explanation of column headings

1 State scientific and/or common name or names of tree, shrub, or other plant species attacked by the insect.

2 State scientific and/or common name of the insect if known. If unknown, so state, and indicate its general type, whether bark beetle, borer, defoliator, leaf miner, gall aphis, budworm, twig pruner, etc.

3 Indicate whether infestation is general throughout the park or restricted to certain stated areas. Reference the site of the infestation to geographical or cultural features that are commonly known and named on the official map of the park. Examples are: Summit of Beech Knob; Battery 5; Tuolumne Meadows; Shirttail Canyon; Whitman Creek; Campground No. 12; etc.

4 If infestation is limited or confined to a few scattered trees state number of trees attacked. If restricted to roadsides state miles of same affected. If widespread state acreage and average number of trees per acre attacked.

5 Indicate severity of damage caused by the infestation. State whether trees are killed, dying, weakened, defoliated, or otherwise injured by the insect as a primary cause.

6 State whether infestation is a new or old one. If old indicate whether it has increased, decreased, or remained the same since last year.

7 State approximate opening and closing dates of applied control.

8 State what treatment was applied last year, if any, and to what extent it was responsible for any change indicated in column 9.*

9 State what treatment was applied this year, if any, and to what extent it appears to have been effective.*

10 State what treatment is recommended for next year, if any.*

11 Indicate approximate cost in man-days and materials separately of treatment recommended under 10.

* Give exact formula of any sprays or chemicals used or recommended, or indicate S. F. No. as listed in Tree Preservation Bulletin No. 6. State also date or dates of application.